

CLAIMS

1. A phosphorus-, perfluoropolyether-, and perfluoroalkyl-containing compound comprising either (i) mono- or poly-alkylene oxide linking groups between the phosphorus and the fluorocarbon group, or (ii) no linking group  
5 between the phosphorus and fluorocarbon group, or (iii) individual mixtures of (i) and (ii); and said fluorocarbon group is said perfluoropolyether or perfluoroalkyl group.
2. A compound according to claim 1 comprising a mono- or poly-alkylene oxide linking groups between the phosphorus and the fluorocarbon group.
- 10 3. A compound according to claim 2 wherein said compound is Formula IA disclosed in the specification.
4. A compound according to claim 2 wherein said compound is Formula IB disclosed in the specification.
- 15 5. A compound according to claim 2 wherein said compound is Formula IIA disclosed in the specification.
6. A compound according to claim 2 wherein said compound is Formula IIB disclosed in the specification.
7. A compound according to claim 1 comprising no linking group between the phosphorus and fluorocarbon group.
- 20 8. A compound according to claim 7 wherein said compound is Formula III disclosed in the specification.
9. A compound according to claim 7 wherein said compound is Formula IV disclosed in the specification.
- 25 10. A compound according to claim 1 comprising only one mono-alkylene oxide or polyalkylene oxide linking group and having the proviso of (1) when said perfluoroether has a mono- or poly-alkylene oxide linking group, said fluoroalkyl has no linking group and (2) when said fluoroalkyl has a mono- or poly-alkylene oxide linking group, said perfluoroether has no linking group.
11. A compound according to claim 10 wherein said compound is Formula V  
30 disclosed in the specification.

13. A compound according to claim 10 wherein said compound is Formula VIA disclosed in the specification.
14. A compound according to claim 10 wherein said compound is Formula VIB disclosed in the specification.
- 5 15. A compound according to claim 10 wherein said compound is Formula VII disclosed in the specification.
16. A compound according to claim 10 wherein said compound is Formula VIIIA disclosed in the specification.
- 10 17. A compound according to claim 10 wherein said compound is Formula VIIIB disclosed in the specification.
18. A compound according to claim 1 wherein said compound is a partially esterified phosphate, a partially esterified phosphonate, a salt of a partially esterified phosphate, a salt of a partially esterified phosphonate, or mixtures of two or more thereof.
- 15 19. A compound according to claim 18 comprising a mono- or poly-alkylene oxide linking groups between the phosphorus and the fluorocarbon group.
20. A compound according to claim 19 wherein said compound is Formula IXA disclosed in the specification.
21. A compound according to claim 19 wherein said compound is Formula 20 IXB disclosed in the specification.
22. A compound according to claim 19 wherein said compound is Formula XA disclosed in the specification.
23. A compound according to claim 19 wherein said compound is Formula XB disclosed in the specification.
- 25 24. A compound according to claim 18 comprising no linking group between the phosphorus and fluorocarbon group.
25. A compound according to claim 18 wherein said compound is Formula XI disclosed in the specification.

26. A compound according to claim 18 wherein said compound is Formula XII disclosed in the specification.

27. A compound according to claim 18 comprising only one mono-alkylene oxide or polyalkylene oxide linking group and having the proviso of (1) when  
5 said perfluoroether has a mono- or poly-alkylene oxide linking group, said fluoroalkyl has no liking group and (2) when said fluoroalkyl has a mono- or poly-alkylene oxide linking group, said perfluoroether has no liking group.

28. A compound according to claim 27 wherein said compound is Formula XIII disclosed in the specification.

10 29. A compound according to claim 27 wherein said compound is Formula XIVA disclosed in the specification.

30. A compound according to claim 27 wherein said compound is Formula XIVB disclosed in the specification.

15 31. A compound according to claim 27 wherein said compound is Formula XV disclosed in the specification.

32. A compound according to claim 27 wherein said compound is Formula XVIA disclosed in the specification.

33. A compound according to claim 27 wherein said compound is Formula XVIB disclosed in the specification.

20 34. A composition comprising a phosphorus-, perfluoropolyether-, and perfluoroalkyl-containing compound and optionally a thickener wherein said compound is the same as one of Formulae IA to XVIB disclosed in the specification.

35. A composition according to claim 34 wherein said compound is a partially esterified phosphate, a salt of a partially esterified phosphate, or mixtures thereof.  
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36. A composition according to claim 34 wherein said compound is a partially esterified phosphonate, a salt of a partially esterified phosphonate, or mixtures thereof.

37. A composition according to claim 34 where said thickener is  
30 polytetrafluoroethylene.

38. A composition according to claim 35 where said thickener is polytetrafluoroethylene.
39. A composition according to claim 36 where said thickener is polytetrafluoroethylene.
- 5 40. A recording medium comprising a lubricant, which comprises a phosphorus-, perfluoropolyether-, and perfluoroalkyl-containing compound recited in one of claims 1 to 39.